

MGG867005023

Lead Sample

Laboratory Item: 1008

ANS

2220

2110

2110 S. Boston

2220 - file JFD

2120 - Mapic

MGG 09005023

A SUMMARY OF ENGINEERING PROPERTIES, SEDIMENT SIZE AND
COMPOSITION ANALYSIS OF A CORE FROM CRUISE 266708,
NORTH CENTRAL PACIFIC, OCTOBER 1967.

197-13

Engineering Properties

Prepared by:

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Size and Composition

Prepared by:

Jobst Hulsemann

William J. Vestal

October 1968

Geological Lab-Laboratories Branch
Nearshore Surveys Division
Oceanographic Surveys Department

U. S. [Naval Oceanographic Office]
Washington, D. C. 20390

EXPLANATION OF COMPUTER DATA SHEET
SEDIMENT SIZE AND COMPOSITION

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Results of sediment-size and composition core analysis performed by the U. S. Naval Oceanographic Office Geological Laboratory are tabulated on Computer Data Sheet Sediment Size and Composition.

The following is an explanation of the terms employed on the Computer Data Sheet:

1. CRUISE. A number assigned to each cruise for identification purposes.

2. SAMPLE. A consecutive number applied to each core taken successively throughout the cruise.

3. LATITUDE. Expressed in degrees, minutes, and tenth of minutes.

4. LONGITUDE. Expressed in degrees, minutes, and tenths of minutes.

5. TAKEN. Date in day, month, and year that core was taken.

6. CORER TYPE. Number corresponding to sampling device code below.

- | | |
|-------------------------|----------------|
| 1. Hydroplastic piston | 6. Orange Peel |
| 2. Hydroplastic gravity | 7. Ewing |
| 3. Kullenberg piston | 8. Vibrocorer |
| 4. Kullenberg gravity | 9. Dredge |
| 5. Phleger gravity | 0. Other |

7. LENGTH. Length of core recorded in centimeters as observed in the laboratory.

8. PENETRATION. Penetration of coring device recorded in centimeters as observed in the field.

9. DEPTH. The uncorrected sonic sounding recorded in meters.

10. ANALYZED. Date in day, month, and year that the core was analyzed in the laboratory.

11. ID. NO. Three digit laboratory project number followed by consecutive number assigned to each subsample analyzed.

12. INTERVAL. Interval of subsample as measured in centimeters from the top of the core.

13. MM. Particle diameter size intervals based on Wentworth size grades in millimeters.

14. PER. Percent of total sample weight within the given size interval. Smallest size analyzed is 0.0010 mm. Percent recorded for 0.0000- is

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percentage of particles smaller than 0.0010 mm.

15. GRAVEL, SAND, SILT, CLAY. Percent of total sample weight within the four size classes.

Class ranges are: Gravel - coarser than 2mm
Sand - 2 to 0.0625 mm
Silt - 0.0625 to 0.0039 mm
Clay - finer than 0.0039 mm

16. MEAN (MM). The geometric mean of the distribution expressed in millimeters.

17. MEAN (PHI). The logarithmic mean of the distribution expressed in phi units (-log₂ of the diameter in millimeters).

18. STAN DEV. Standard deviation. A measure of the degree of spread or dispersion of the distribution about the mean expressed in phi units.

$$s = \sqrt{\sum f(x_i - \bar{x})^2 / 100}$$

19. SKEWNESS. A measure of the asymmetry of the distribution. Positive values denote skewness of the distribution toward the fine particles, negative values denote skewness toward the coarse particles. A normal distribution has a skewness of 0.

$$\text{SKEWNESS} = 1/100 s^{-3} \sum f(x_i - \bar{x})^3$$

20. KURTOSIS. A measure of the peakedness of the distribution. Positive values denote a "leptokurtic" distribution, or a distribution more "peaked" than normal. Negative values denote a "platykurtic" distribution, or a distribution more "flat" than normal. A normal curve has a kurtosis of 0.

$$\text{KURTOSIS} = 1/100 s^{-4} \sum f(x_i - \bar{x})^{4-3}$$

21. CACO₃. Percent calcium carbonate of the total sample weight as determined by the insoluble residue method.

22. ORG CARBON. Percent organic carbon of the total sample weight as determined by the Allison method.

23. COLOR. Wet sediment color, based on the Geological Society of America Rock-Color Chart, as determined in the laboratory.

24. DOM MINERAL. Dominant mineral (s) comprising the sample assemblage.

25. SEC MINERAL. Secondary mineral (s) comprising the sample assemblage.

MGGO 9005023

EXPLANATION OF DATA PAGES
CORE ANALYSIS SUMMARY SHEET
Engineering Properties
NAVOCEANO (EXP) 3167/18B (Rev. 1-63)

Results of engineering properties, core analysis performed by the U. S. Naval Oceanographic Office Geological Laboratory are recorded on Core Analysis Summary Sheet Engineering Properties.

The following is a description of the terms employed on the Core Analysis Summary Sheet:

1. Cruise Number. A number assigned to each cruise for identification purposes.
2. Latitude. Expressed in degrees, minutes, and seconds.
3. Longitude. Expressed in degrees, minutes, and seconds.
4. Sample Number. A consecutive number, commencing with 1, applied to each core taken successively throughout the cruise.
5. Date Taken. Day (GMT), month, and year.
6. Water Depth (m). The uncorrected sonic sounding recorded in meters.
7. Type Corer. Identified by the name of device employed.
8. Core Length (cm). Recorded in centimeters as observed in the laboratory.
9. Core Penetration (cm). Recorded in centimeters as observed in the field.
10. Subsample Depth in Core (cm). Interval of subsample as measured in centimeters from the top of the core.
11. Wet Unit Weight (g/cm³). The weight (solids plus water) per unit volume of the sediment mass.
12. Specific Gravity of Solids. The ratio of weight in air of a given volume of a sediment at 20°C to the weight in air of an equal volume of distilled water at 20°C.
13. Water Content (% dry weight). The ratio, in percent, of the weight of water in a given mass of the sediment sample to the weight of the solid particles.
14. Void Ratio. The ratio of the volume of void spaces to the volume of solid particles in the sediment sample as computed from Wet Unit Weight, Specific Gravity of Solids, and Water Content.

15. Saturated Void Ratio. The Void Ratio at 100 percent saturation as computed from Water Content and Specific Gravity of Solids.

$$\text{Saturated Void Ratio} = \frac{\text{Water Content} \times \text{Specific Gravity of Solids}}{100}$$

16. Porosity (%). The ratio, usually expressed as a percentage, of the volume of voids of a sediment mass to the total volume of the sediment mass.

17. Liquid Limit. Water Content, in percent, at which a pat of sediment cut by a groove of standard dimension will flow together for a distance of 1/2 inch under the impact of 25 blows in a standard liquid limit apparatus.

18. Plastic Limit. Water Content, in percent, at which a sediment will just begin to crumble when rolled into a thread approximately 1/8 inch in diameter.

19. Plasticity Index. The numerical difference between the Liquid Limit and Plastic Limit of the sediment mass.

20. Liquidity Index. The ratio, expressed in percentage, of (1) the natural water content of the sediment sample minus its Plastic Limit to (2) its Plasticity Index.

21. Compression Index. The slope of the linear portion of the Pressure-Void Ratio curve on a semi-log plot.

22. Compressive Strength. The load per unit area required to shear an unconfined, natural or remolded, sediment mass.

23. Cohesion. The shearing strength per unit area under zero externally applied load.

24. Sensitivity. The ratio of the natural to the remolded strength. It is a measure of the loss of strength due to remolding the sediment mass.

25. Angle of Internal Friction ($^{\circ}$). The angle between the abscissa and the tangent of the curve representing the relationship of "shearing resistance" to "normal stress" acting within a sediment mass.

26. Activity. The ratio of the Plasticity Index to the clay fraction percentage (<.002mm) of the sediment mass.

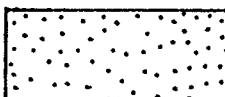
27. Modulus of Elasticity. The ratio of stress to strain of the sediment mass.

28. Slump (%). The ratio, in percent, of the amount of height change immediately before the compressive strength test to the original height of a cylinder of sediment.

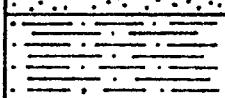
MC 00005023

LEGEND

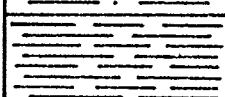
SAND



SILT



CLAY



SHELLS:

PELECYPODS
GASTROPODS

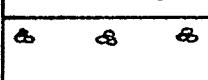


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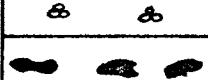
DIAATOMS &
PLEROPODS



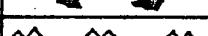
GLOBIGERINA



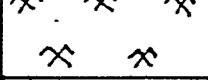
PEBBLES &
GRAVELS



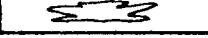
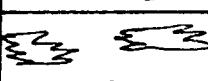
SPINES &
SPICULES



CORALS



MOTTLING



CORE DESCRIPTION SHEET

NAVOCEANO-3167/93 (3-68)

197-13

MGG 091, 05023

SAMPLE NO. 75-1

LATITUDE 51° 25' N WATER DEPTH (M): 4618

LONGITUDE 163° 39' W CORE LENGTH (CM): 366

DATE CORED (D.M.Y): 24 OCT. 67

CORE PENETRATION (CM):

LOGGED BY: COLEMAN

ITEM NO: PB(1008)

DATE LOGGED IN (D.M.Y): 28 NOV. 67

REMARKS. (Odor, bedding, shells, structures, mottling, disturbance, etc.)	DEPTH (CM)	CORE SKETCH	COLOR (GSA)	LAB. NO.	SAMPLE INTERVAL (CM)	SEDIMENT TYPE (Visual)
CLAY, DARK VEL. BEN., V. SILTY.		.	10YR3/2	PB-1	0-3	SANDY
SANDY, U. SOFT, BENTONITE?		.	10YR4/2	PB-2	3-10	SILTY
GRAMS OF MG? MICA, QTZ. TRACE OF BIZZARIE. HORNISLAND. BECOMES		.	5Y4/1			CLAY
LIGHTER, LESS SANDY. QUARTZITE GRAVEL. COARSE FROSTED QUARTZ	10	.	5Y4/1	PB-12	GRAVELS 12CM.	
GRAVEL & CLAY, LT. H. OLIVE		.				
CLAY SILTY, SDY, W/F. Q.L. MICA, HORNISLAND. MG GRAMS.		.				
CLAY AS ABOVE, SD. GR.	20	.		PB-3	20-27	
SUB. ANG. TO WELL RND. INCREASE IN SILT.		.				
CLAY, LT. M. GRAY, V. SILTY	30	.				
SILTY SANDY W/QTZ..		.				
MICA & MG. GRAINS. NOM. OF GRANULES OF BLK. SHISTS.		.				
GRAVEL, 3x2 1/2 x 1/2 CM.	40	.				
CLAY, LT. GRAY BENTONITIC. U. SILTY, SDY, W/F-C SUB. ANG. TO MED. QTZ. F.O.G. MICA, HORNISLAND.	50	.				
CLAY AS ABOVE. DECREASE IN SAND. SCATTERED MG. & SHIST GRANULES. IR. TERRAMITE		.				
LENS OF CLAY AS ABOVE. VERY SANDY W/SHIST GRANULES.	60	.				
CLAY, LT. GRAY, BENTONITIC SDY, SDY, SILTY.	70	.				
INCREASE IN SAND		.				
SAND LENSES & BURROWS. FILL FINE GRAINS.	80	.				
CLAY, LT. GRAY, SILTY, BENTONITIC, M-J. SANDY, W/ W-F SAND, SCATTERED M- SD, MICA.	90	.				
	100	.				

CORE DESCRIPTION SHEET

NAVOCEANO 3167 '93 (3-68)

SAMPLE NO. BS-1

LOCATION: N. CEN. PACIFIC SAMPLER TYPE: KULLENBERG

LATITUDE 51° 25' N WATER DEPTH (M): 4618

LONGITUDE 163° 39' W CORE LENGTH (CM): 366

DATE CORED (D,M,Y): 24 OCT. 67

CORE PENETRATION (CM):

LOGGED BY COLEMAN

ITEM NO: P8 (100A)

DATE LOGGED IN (D,M,Y): 28 NOV. 67

REMARKS: (Odor, bedding, shells, structures, mottling, disturbance, etc.)	DEPTH (CM)	CORE SKETCH	COLOR (GSA)	LAB. NO.	SAMPLE INTERVAL (CM)	SEDIMENT TYPE (Visual)
CLAY. LT. GRAY. SILTY. SANDY MICA. BENTONITIC		.	N4			SANDY
SAND LENSE. MD. BROWN. DK. GRAY F.G. SUB-ANG. CLAYEY. SILTY.	110	.	N2-N3			SILT/CLAY
SAND LENSE. AS ABOVE. CLAY. LT. GRAY. SILTY. SANDY. MICA. SLY. BENTONITIC.	120	.	N4	PB-8	110-117	
INDISTINGUISHABLE MOTTLING OF CLAY AS ABOVE. U. SANDY.	130	.		PB-9	123-130	
CLAY BECOMES SLY. SANDY. SAND LENSES & BURROW FILL W/ MD. BROWN. DK. GRAY. J.F.-F. GRAIN SUB. ANG., CLAYEY. CLAY AS ABOVE SLY. SANDY.	140	.	N4	PB-10	140-147	
CLAY. GRAY. U. SANDY. SILTY W/ INDISTINGUISHABLE SAND FILLED BURROWS. GRAVEL. TRIANGULAR 4x3x1 CM. IRONCOATED ANDESITE. SCATTERED GRANULES OF SHIST. QUARTZITE	150	.	N3-N2			
CLAY AS ABOVE. DECREASE IN SAND. SILT	160	.	N4	PB-14	GRAVEL @ 150CM.	
BATT. SEC. N				PB-11	160-167	
CLAY. LT. GRAY. SANDY. SILTY WITH F-C. SUBS. ANGULAR, DTZ. GRAINS. TZ. HEMIMITE. MICA. HORNBLENDE, SERPENTINE. DIATOMS. SCATTERED SAND FILLED WITH TUBES.	180	.		PB-15	180-190	
	190	.		PB-16	190-197	
	200	.				

CORE DESCRIPTION SHEET

NAVOCANO 3167 '93 (3-68)

197-13

MGG09105023

SAMPLE NO. BS-1

LOCATION: N.CEN. PACIFIC SAMPLER TYPE: KULLENBERG

LATITUDE 51° 25' N WATER DEPTH (M): 4618

LONGITUDE 163° 39' W CORE LENGTH (CM): 366

DATE CORED (D,M,Y): 24 OCT. 67 CORE PENETRATION (CM):

LOGGED BY: COLEMAN

ITEM NO: PBL1008

DATE LOGGED IN (D,M,Y): 28 NOV. 67

REMARKS: (Odor, bedding, shells, structures, mottling, disturbance, etc.)	DEPTH (CM)	CORE SKETCH	COLOR (GSA)	LAB. NO.	SAMPLE INTERVAL (CM)	SEDIMENT TYPE (Visual)
CLAY AS ABOVE		o	N4			SANDY SILTY
CLAY, LT. GRAY, SANDY, SILTY, STRIDES INTO VOLCANIC ASH.		o	↓ SY6/1	PB-17	206-209	CLAY
VOLCANIC ASH, GLASS? WEATHERED WITH DIATOMS, CLAY AS ABOVE		x	SY8/1	PB-18	210-217	
VERY DIATOMACEOUS, GLASS? ASH?	210	x	N4 To SY5/1			
FILLED WORM TUBES, ALMOST A CLAYEY DIATOMACEOUS BAND.		o	↓ N4			
SAND (VOLC. ASH?) BROWNISH BLACK, FINE TO COARSE, SUB- ANG. TO SUB. RND. SILTY CLAYEY	220	o	↓ SY25/1	PB-19	222-226	
HEMITITIC CLAY, LT. GRAY,		o	To			
U. DIATOMACEOUS EARTH INTERBEDDED W/CLAY AS	230	o	SY22/1	PB-20	230-237	
ABOVE.		o	N4			
LENSES AND STREAKY DIATOMACEOUS	240	o				
SD. SD. STKS. F/C SUB. ANG. W/ VOLC. FRAG'S. CLAY, LT. GRAY		o				
SANDY DIATOMACEOUS.		o				
SAND, LT. YEL. VF. - C. SUB. ANG. W/ DIATOMS, VOLC. FRAG		o				
SAND, BZN.-GRY. VF. M.G.	250	o				
W/DK MG. VOLC. HEMITITE.		o				
SAND, LT. YEL. GRY. VF. - CG.		o				
SUB. ANG. TO SUB. RND.		o				
W/DK. COLOR VOLC. CLAY		o				
L.T. GRAY, U. SDY. DIATOMACEOUS.	260	o				
SAND, VF. CG., VOLC. HEMITE W/ GRANULES OF VOLC. SHALE		o				
SILTSTONE [TURBIDITE]		o				
CLAY, LT. GRAY U. SDY.	270	o				
DIATOM. SILTY W/ ANG. QTZ.		o				
DK. VOLC. SLY. MICACEOUS.		o				
BSZN. SD. FILLED WORM TUBES.		o				
CLAY, AS ABOVE. U. SDY. V. DIATOMACEOUS, NUMEROUS SD. FILLED WORM TUBES.	280	o				
CLAY, AS ABOVE. U. DIATOM- ACEOUS CLAY, LT. GRAY. U. SDY. HEMITITE DIATOM- ACEOUS. SILTY W/ F-C.	290	o				
ANG. VOLC. G. AND X/S		o				
BSZN. TR. ORG. MATER.	300	o				

CORE DESCRIPTION SHEET

NAVOCEANO 31 Oct '67 (3-68)

MAG-09005023

197-13

SAMPLE NO. 35-1

LOCATION: N. CEN. PACIFIC SAMPLER TYPE: KULLENBERG

LATITUDE 51 ° 25' N WATER DEPTH (M): 4618

LONGITUDE 163 ° 39' W CORE LENGTH (CM): 366

DATE CORED (D.M.Y): 24 OCT. 67 CORE PENETRATION (CM):

LOGGED BY: COLEMAN ITEM NO: P8(1008) DATE LOGGED IN (D.M.Y): 28 NOV. 67

REMARKS: (Odor, bedding, shells, structures, mottling, disturbance, etc.)	DEPTH (CM)	CORE SKETCH	COLOR (GSA)	LAB. NO.	SAMPLE INTERVAL (CM)	SEDIMENT TYPE (Visual)
SD. STKS. BN. TO GRAY. F-VF.		○ . .	N4	P8-26	300-307	SANDY
U. DIATOMACEOUS CLAV AS		. . . ○				SILTY
ABOVE U. SDY. U. DIATOM.		. . . ○				CLAY
	310	○ . .				
SAND? LT. GRAY. U.F.-CG. V.		. . . ○		P8-27	313-320	
DIATOMACEOUS. U. CLAYEY		. . . ○				
GRADES INTO CLAY. LT. GRAY.		. . . ○				
U. SDY.. U. DIATOMACEOUS,	320	○ . .	N4 TO 5Y6/1			
HEMITITIC.		○ . .	N4			
SAND. LT. GRAY. To LT. OLIVE		. . . ○				
GRAY W/F. MG. U. DIATOMACEOUS.		. . . ○				
W/CLAYEY INTERBEDDED CLAY	330	○ . .		P8-28	325-330	
		○ . .				
		○ . .		P8-29	330-337	
		○ . .	N4			
CLAY. LT. GRAY. U. SDY. V.	340	○ . .				
DIATOM. HEMITITIC W/ Volc.		○ . .				
FRAG. MICACEOUS.		○ . .				
	350	○ . .		P8-30	350-357	
SAND. LT. GRAY. U.F.-CG.		○ . .				
U. DIATOMACEOUS W/CLAYEY		○ . .				
INTERBEDDED SDY. CLAY		○ . .				
HEMITITIC.	360	○ . .	N4 TO 5Y6/1			
SAND AS ABOVE. F-CG		○ . .				
ALMOST A U. SDY. CLAY.		○ . .				
	70	366 CM.	N4			
	80					
	90					
	00					

CORE ANALYSIS SUMMARY SHEET
SEDIMENT SIZE AND COMPOSITION

ANALYZED BY Hulsemann/Vestal

1008

197-13

DATE July/August 1968

1. CRUISE NO.	266708	4. SAMPLE NO. BS - 1	5. DATE TAKEN (DAY, MO., YR.) 24 Oct. 1967	6. WATER DEPTH (m) 618 m	7. TYPE CORER Kullenberg - Piston	8. CORE LENGTH (cm) 366 cm	9. CORER PENETRATION (cm)
2. LATITUDE	51 ° 25'	" N					
3. LONGITUDE	63 ° 39'	" W					
10. LABORATORY NUMBER	1	2	3	4	5	6	7
11. SUBSAMPLE DEPTH IN CORE (cm)	0 - 3	10 - 17	53 - 60	70 - 77	90 - 97	110 - 117	118 - 123
12. COLOR (GSA ROCK COLOR CHART)	10 YR 3/2	10 YR 4/3	N 4	N 3	N 4	N 4	N 4
E FIELD <input checked="" type="checkbox"/> LAB DETERMINATION	1	1	1	1	1	1	1
13. ODOR							
14. SIZE & COMPOSITION ANALYSIS							
a. > 4 mm (%)							
b. 2 to 1 mm (%)	5	5.0	2.9	5.0	15.1	8	2.0
c. 2 to .500 mm (%)	.5	1.1	.7	1.2	6	.7	.3
d. 1 to .250 mm (%)	.9	1.4	2.5	1.2	1.5	.7	.6
e. .500 to .125 mm (%)	2.7	3.6	5.7	3.3	2.5	4.5	2.0
f. .250 to .062 mm (%)	6.8	9.3	4.3	6.7	4.3	6.0	5.1
g. .125 to .031 mm (%)	5.9	7.1	3.6	4.2	3.1	4.5	5.4
h. .062 to .016 mm (%)	11.8	10.1	6.1	6.7	6.8	7.5	7.7
i. .031 to .006 mm (%)	7.7	6.8	8.6	8.8	6.5	10.6	8.1
j. .016 to .003 mm (%)	9.1	7.1	10.0	8.8	7.7	8.3	11.7
k. .008 to .004 mm (%)	11.5	12.5	16.1	14.6	13.6	15.1	16.8
l. .004 to .002 mm (%)	13.2	11.8	12.2	12.1	9.9	12.8	11.7
m. .002 to .001 mm (%)	10.9	10.0	11.1	9.2	10.1	9.1	10.7
n. < .001 mm (%)	15.5	13.6	17.2	17.2	17.5	18.5	17.1
o. Median Diameter (mm)	.0062	.009	.0056	.0067	.0071	.0058	.0059
p. Sorting Coefficient (phi)	.72	.61	.74	.69	.58	.73	.75
q. Skewness (phi units)	.80	.70	.86	.78	.58	.83	.88
r. Standard Deviation (mm)							
s. Sediment Type	cl.sil	sd.sil	silt	silt	cl.sil	cl.sil	cl.sil
t. Dominant Minerals (%)							
u. Secondary Minerals (%)							
v. Calcium Carbonate (%)	11.3	11.6	11.2	11.5	12.2	12.2	10.6
w. Organic Carbon (%)							
15. REMARKS	sample 15, 180-190 cm in core has 10.6 % CaCO ₃						

MCGO9006050

MCG 0 6 10 5 0 2 3

PRNC-NAVOCÉANO-3167/18 A (4-63)

CORE ANALYSIS SUMMARY SHEET
SEDIMENT SIZE AND COMPOSITION

100

197-13

MGG 09 / 03023
ANALYZED BY Hulsemann/Vest

DATE July/August 1968

1. CRUISE NO.	266708 (continuation)		4. SAMPLE NO.	BS - 1, continuation 1	
2. LATITUDE	•	•	5. DATE TAKEN (DAY, MO., YR.)	7. TYPE CORER	
3. LONGITUDE	•	•	"	8. CORE LENGTH (cm)	
10. LABORATORY NUMBER	18	19	20	21	22
11. SUBSAMPLE DEPTH IN CORE (cm)	210-17	222-26	230-23	247-55	23-54
12. COLOR (GSA ROCK COLOR CHART) FIELD <input checked="" type="checkbox"/> LAB DETERMINATION	5Y 5/1	5Y 6/1	5Y 6/1	5Y 7/1	N 4
13. ODOR	L	L	L	L	L
14. SIZE & COMPOSITION ANALYSIS					
a. > 4 mm (%)	8	0	2	tr.	tr.
b. < 4 to 2 mm (%)	1.4	1.0	3	9	8
c. 2 to 1 mm (%)	1.8	6.0	6	1.7	1.8
d. 1 to .500 mm (%)	2.9	27.7	1.7	3.1	2.5
e. .500 to .250 mm (%)	5.8	20.8	4.0	6.9	4.7
f. .250 to .125 mm (%)	6.1	5.0	tr.	10.3	8.5
g. .125 to .062 mm (%)	.062	10.0	16.4	17.0	18.6
h. .062 to .031 mm (%)	9.8	12.9	13.5	11.4	11.8
i. .031 to .016 mm (%)	6.5	7.9	11.1	16.1	16.1
j. .016 to .008 mm (%)	17.0	11.9	9.5	19.0	16.0
k. .008 to .004 mm (%)	5.8	2.0	14.3	9.5	12.3
l. < .004 mm (%)	12.0	1.0	13.0	5.2	7.0
m. .002 to .001 mm (%)	10.5	1.0	10.4	2.6	4.0
n. < .001 mm (%)	19.6	3.0	21.4	7.8	6.8
o. Median Diameter (mm)	0.0087	1.58	.005	.0192	.0175
p. Sorting Coefficient	.70	.58	.75	.77	.80
q. Skewness	.94	1.28	.90	.91	1.02
r. Standard Deviation (mm)					
s. Sediment Type	cl.sil.si.sd.	cl.sil	silt	silt	sd.cl sd.cl sd.cl sd.cl sd.cl sd.cl
t. Dominant Minerals (%)					
u. Secondary Minerals (%)					
v. Calcium Carbonate (%)	8.8	4.1	10.4	8.7	5.7
w. Organic Carbon (%)					
x. REMARKS					
7. CORE LENGTH (cm)	20	29	30	37	357-31
8. CORE LENGTH (cm)	300	313	325	335	350-57
9. CORER PENETRATION (cm)	N4	N4	N4	N4	N4
L	L	L	L	L	L

PRNC-NAVOCEANO-3167/18 B (4-63)

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

MGG 900 5023
ANALYZED BY OLEMANE LICHSTEIN
DATE 27 Nov 67 - 22 Oct 68

197-13

1. CRUISE NO.	266708	4. SAMPLE NO.	BS-1	7. TYPE CORER	KOULZENKERTZ (7.5 cm)
2. LATITUDE	51 ° 25'	N	5. DATE TAKEN (Day, month, year)	24 Oct. 67	8. CORE LENGTH (cm)
3. LONGITUDE	163 ° 39'	W	6. WATER DEPTH (m)	4618	9. CORER PENETRATION (cm)
10. SUBSAMPLE DEPTH IN CORE (cm)	0 - 3	3 - 10 (1.45) 1.64	10 - 20 20 - 27 27 - 30 30 - 37 37 - 40	1.44	1.49
11. WET UNIT WEIGHT (g/cm^3)					1.46
12. SPECIFIC GRAVITY OF SOLIDS	2.61	2.59		2.62	2.63
13. WATER CONTENT (%) dry weight)	98.1 (2.56) 2.17	108.3 2.74		95.4 2.43	93.0 2.48
14. VOID RATIO					
15. SATURATED VOID RATIO	2.56 (71.91) 68.45	2.80 73.26		2.50 70.85	2.45 71.26
16. POROSITY (%)					
17. LIQUID LIMIT					
18. PLASTIC LIMIT					
19. PLASTICITY INDEX					
20. LIQUIDITY INDEX					
21. COMPRESSION INDEX FROM LL					
22. COMPRESSIVE STRENGTH NATURAL REMOULD	(g/cm^2) (g/cm^2)				
23. COHESION NATURAL REMOULD	(g/cm^2) (g/cm^2)	3.04 1.52	39.21 13.18	10.31 0.84	6.79 1.51
24. SENSITIVITY	2.0	3.0		12.3	4.5
25. ANGLE OF INTERNAL FRICTION (°)					
26. ACTIVITY					
27. MODULUS OF ELASTICITY					
28. SLUMP (cm)					
29. REMARKS	L3-10cm) t (90.97cm) (180cm) (264cm) (363cm)	RECOMPUTED Assumng Sediment is 100% SATURATED IN-SITE. SPECIFIC GRAVITY - 2.62 " " - 2.61 " " - 2.60			

SHEET 1 OF 4

MGG09005023

PRNC-NAVOCEANO-3167/18 B (4-63)

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

ANALYZED BY Cleman & Associates
DATE 27 Nov 67 - 22 Oct. 68

197-13

		4. SAMPLE NO.		5. DATE TAKEN (day, month, year)		6. WATER DEPTH (m)		7. TYPE CORER (WHEELBARROW (P.S.))		8. CORE LENGTH (cm)		9. CORE PENETRATION (cm)	
1. CRUISE NO.	266708	55-1		24 OCT 67									
2. LATITUDE	51 ° 25 '	N											
3. LONGITUDE	163 ° 39 '	W											
10. SUBSAMPLE DEPTH IN CORE (cm)	70.77	71.90	90.97	97.11	10.11	11.11	12.12	13.13	14.14	15.15	16.16	17.17	18.18
11. WET UNIT WEIGHT (g/cm³)	1.53	1.54	1.47	1.52		1.46			1.48				1.52
12. SPECIFIC GRAVITY OF SOLIDS	2.64	2.60	2.86							2.60			2.62
13. WATER CONTENT (%) dry weight)	84.7	91.7	89.3	110.10						88.9			81.8
14. VOID RATIO	2.19	(2.38)	2.24	2.55						2.31			2.13
15. SATURATED VOID RATIO	2.74	2.38	2.55							2.31			2.14
16. POROSITY (%)	68.45	(70.41)	69.14	71.83						69.79			68.05
17. LIQUID LIMIT													
18. PLASTIC LIMIT													
19. PLASTICITY INDEX													
20. LIQUIDITY INDEX													
21. COMPRESSION INDEX FROM LL													
22. COMPRESSIVE STRENGTH NATURAL (g/cm²)	REMOULD (g/cm²)												
23. COHESION	NATURAL (g/cm²)	32.4	41.7	27.0	34.6	18.9	9.6.9						
	REMOULD (g/cm²)	2.0	7.1	10.9	7.7	5.8	21.2						
24. SENSITIVITY	16.2	5.9	2.4	4.5						3.3			4.16
25. ANGLE OF INTERNAL FRICTION (°)													
26. ACTIVITY													
27. MODULUS OF ELASTICITY													
28. SLUMP (")													
29. REMARKS	(10-17cm) SPECIFIC GRAVITY COMPUTED ASSUMING WET UNIT WEIGHT & MOISTURE CONTENT AREA CORRECT. NO SAMPLE RECEIVED FOR DRAWING. L123.130K.1 MOISTURE CONTENT DONT FUL.												

ITEM # P1008

SHEET 2 of 4

MCG/J 9005023

CORE ANALYSIS SUMMARY SHEET
ENGINEERING PROPERTIES

PRNC-NAVOCEANO-3167/18 B (4-63)

ANALYZED BY CHARLES A. GROSHEN

DATE 27 NOV. 67 - 22 OCT 68

197-13

1. CRUISE NO.	266708	4. SAMPLE NO.	12S-1	7. TYPE CORER	WILCOX 2A (PISTON)
2. LATITUDE	51° 25'	5. DATE TAKEN (day, month, year)	24 OCT 67	8. CORE LENGTH (cm)	366
3. LONGITUDE	163° 39'	6. WATER DEPTH (m)	4618	9. CORER PENETRATION (cm)	
10. SUBSAMPLE DEPTH IN CORE (cm)	167.176.176.190	10. DRY WEIGHT (g/cm³)	1.618	11. WET WEIGHT (g/cm³)	1.58
11. WET UNIT WEIGHT (g/cm³)		12. SPECIFIC GRAVITY OF SOLIDS	1.58	13. WATER CONTENT (%)	1.44
12. SPECIFIC GRAVITY OF SOLIDS		14. VOID RATIO	2.63	15. SATURATED VOID RATIO	2.53
13. WATER CONTENT (%)		16. POROSITY (%)	72.2	17. LIQUID LIMIT	106.6
14. VOID RATIO		18. PLASTIC LIMIT	1.87	19. PLASTICITY INDEX	2.62
15. SATURATED VOID RATIO		20. LIQUIDITY INDEX	1.91	21. COMPRESSION INDEX FROM LL	2.70
16. POROSITY (%)		22. COMPRESSIVE STRENGTH NATURAL	65.16	23. COHESION	72.38
17. LIQUID LIMIT		REMOULD		NATURAL	75.25
18. PLASTIC LIMIT		(g/cm²)		REMOULD	
19. PLASTICITY INDEX		(g/cm²)		(g/cm²)	
20. LIQUIDITY INDEX		(g/cm²)		24. SENSITIVITY	
21. COMPRESSION INDEX FROM LL				25. ANGLE OF INTERNAL FRICTION (°)	
22. COMPRESSIVE STRENGTH NATURAL				26. ACTIVITY	
REMOULD				27. MODULUS OF ELASTICITY	
(g/cm²)				28. SLUMP (in)	
				29. REMARKS	(230-237 cm.) SPECIFIC GRAVITY COMPUTED ASSUMING WET UNIT WEIGHT & MOISTURE CONTENT ARE CORRECT. NO SAMPLE REACHES FOR CONSISTENCY.

ITEM # P1008

SHEET 3 OF 4

MCG U 9005023

CORE ANALYSIS SUMMARY SHEET ENGINEERING PROPERTIES

PRNC-NAVOCEANO-3167/18 B (4-63)

ANALYZED BY CLEMENS FANSTER

1970/3

1. CRUISE NO.	266708	4. SAMPLE NO.	TS - 1	7. TYPE CORER	KUULABENZA (P, STONE)	
2. LATITUDE	51 ° 25'	N	5. DATE TAKEN (Day, month, year)	24 OCT. 67	8. CORE LENGTH (cm)	366
3. LONGITUDE	163 ° 39'	W	6. WATER DEPTH (m)	46.8	9. CORER PENETRATION (cm)	
10. SUBSAMPLE DEPTH IN CORE (cm)	26.7	11. WET UNIT WEIGHT (g/cm³)	26.7	12. SPECIFIC GRAVITY OF SOLIDS	2.44	
11. WET UNIT WEIGHT (g/cm³)	1.60	13. WATER CONTENT (% dry weight)	1.53	14. VOID RATIO	1.87	
12. SPECIFIC GRAVITY OF SOLIDS	1.60	15. SATURATED VOID RATIO	1.53	16. POROSITY (%)	65.16	
13. WATER CONTENT (% dry weight)	1.60	17. LIQUID LIMIT	1.53	18. PLASTIC LIMIT	1.53	
14. VOID RATIO	1.60	19. PLASTICITY INDEX	1.53	20. LIQUIDITY INDEX	1.53	
15. SATURATED VOID RATIO	1.60	21. COMPRESSION INDEX FROM LL	1.53	22. COMPRESSIVE STRENGTH NATURAL (g/cm²)	45.1	
16. POROSITY (%)	65.16	23. COHESION NATURAL (g/cm²)	35.2	REMOULD (g/cm²)	3.5	
17. LIQUID LIMIT	1.60	24. SENSITIVITY	12.9	25. ANGLE OF INTERNAL FRICTION (°)	11.7	
18. PLASTIC LIMIT	1.60	26. ACTIVITY		27. MODULUS OF ELASTICITY		
19. PLASTICITY INDEX	1.60	28. SLUMP (")		29. REMARKS (260.267cm) Specific Gravity Computed Assuming Wet Unit Weight & Moisture Content Are Collected At Sample Received From Quality Control		
20. LIQUIDITY INDEX	1.60					
21. COMPRESSION INDEX FROM LL	1.60					
22. COMPRESSIVE STRENGTH NATURAL (g/cm²)	45.1					
REMOULD (g/cm²)	3.5					
23. COHESION NATURAL (g/cm²)	35.2					
REMOULD (g/cm²)	3.5					
24. SENSITIVITY	12.9					
25. ANGLE OF INTERNAL FRICTION (°)	11.7					
26. ACTIVITY	20.7					
27. MODULUS OF ELASTICITY	5.5					
28. SLUMP (")	1.7					

SPECIFIC GRAVITY CONDUCTED ASSUMING WET UNIT WEIGHT & MOISTURE CONTENT ARE CORRECT. NO SAMPLE RECEIVED FOR GRAVITY.

ITEM = Piece

SHEET 4 OF 4